CITY OF MILWAUKIE

WATER QUALITY REPORT

CONSUMER CONFIDENCE REPORT • 2019

Photo by Hamid Shibata Bennett

A Message to Milwaukie Water Customers

Dear Milwaukie Water Customer,

Another year has passed and we're pleased to announce that Milwaukie continued to provide the community with clean, safe drinking water by meeting or exceeding all Environmental Protection Agency and State of Oregon Health Authority standards for 2019. The Public Works Department has been hard at work improving the city's infrastructure and natural systems, ensuring access to excellent services, and creating a more resilient and sustainable community for years to come.

In order to guarantee safe drinking water and make informed decisions about water infrastructure, the Public Works Department continuously collects data on water quality and system functionality. Summaries of this data can be found at www.milwaukieoregon.gov/publicworks. This webpage also has other important resources, including a new interactive storymap that highlights how Milwaukie's drinking water travels from the groundwater source at the Troutdale aquifer to the tap at home.

Did you know that groundwater drinking water systems are more protected against climate change? While surface water systems may face toxic algal blooms, agricultural contamination and runoff, and are more vulnerable to warm temperatures and drought, aquifers with millions of gallons of water deep underground are more resilient. While the community can rest assured knowing Milwaukie has a reliable source of drinking water well into the future, the city is still proactive about monitoring and managing its groundwater sources. The city is vigilant about monitoring groundwater contamination. It works closely with the Oregon Department of Environmental Quality (DEQ) to monitor potentially contaminated sites to ensure groundwater systems remain safe.

As drinking water systems age and require more upkeep, necessary improvements are made to maintain and improve the citys' drinking water system. In 2019, the city drilled a new well to replace well #2. Construction began in April 2019 and was completed in September 2019. Construction on the new well house will begin in summer 2020. The Stanley Reservoir

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Message to Water Customers (cont.)

has undergone several high-level inspections and some deficiencies were found, including some on the exterior coating and needed improvement to the mixing of water in the tank to provide more water freshness and seismic resiliency. Work to fix these deficiencies is expected to begin in fall 2022. The city is also in the process of making upgrades to its automated control system for the water system, commonly referred to as SCADA. This system will received upgrades to its communications systems, field automation and cyber security, and expected to be complete in summer 2021.

Providing the community with a clean and reliable source of drinking water remains a top priority. Residents and businesses can help by lowering their overall water use to conserve it for future use, as well as reduce impacts on the environment from unnecessarily pumping from underground and reduce the volume of water needed to be treated. Milwaukie has done a great job conserving water so far. Everyone can all do their part to continue this effort through a few easy changes. Planting native and climate-adapted plants that need less watering, fixing leaks and choosing water-smart appliances are just a few examples. For learn more about smart water habits, visit **www.regionalh2o.org**.

The city is working hard to create a livable and completely sustainable community for everyone. The Public Works Department is doing its part by providing resilient utility systems, as well as leading climate action and urban forest programs. These efforts will benefit Milwaukie's water systems in many ways. By emphasizing the importance of naturally occurring green infrastructure, such as climate-adapted trees and vegetation rather than pavement, more rainfall and runoff can sink into groundwater systems rather than taxing the city's stormwater systems. By promoting the development of efficient buildings with smarter water usage, overall water consumption can be reduced.

These are unprecedented times for the region and nation. With the COVID-19 pandemic, it's understandable that many people are concerned about the wellness of the community. According to the Oregon Health Authority, COVID-19 is not transmitted through managed drinking water systems. The city will continue to protect its drinking water systems, monitor for overall water quality, and will closely coordinate with public works staff to guarantee its safety.

Thank you,

Jamie Clark
Water Quality Coordinator

Upcoming Projects in 2020

The city drilled a new well to replace well #2 at SE 40th Avenue and Harvey Street building in 2019. The second phase of the project will begin in summer 2020 with process piping and the construction of a new well house. The new well will have increased capacity with the ability to pump approximately 600 gallons per minute. The expected completion phase is late fall 2020.

The city is also replacing its SCADA system. SCADA (Supervisory Control and Data Acquisition) is a system for remote monitoring and control of Milwaukie's water system. The last system was installed in 1998 and technological advances have made the city's current system obsolete and difficult to maintain. The upgraded system will implement modern technology to minimize support requirements and maintenance, improve system communications and improve cyber security. Project design began in spring 2020 and it is anticipated to be complete in 2021.

For more information about these projects, contact Ronelle Sears at 503.786.7615 or Peter Passarelli at 503.786.7614.

Everyone Can Help Protect Our Groundwater

The community can help control which chemicals are used in yards and what falls onto driveways. The city encourages everyone to limit their use of chemicals and cleaners that are harmful to the environment. Please clean up any oil or gas spills in your driveway, do not wash them into the street. Do not store fertilizers, pesticides and herbicides outdoors. These chemicals should be stored in a weatherproof shed equipped with a floor.

Properly discard old or unused chemicals, including cleaners, solvents, paints and lubricants, through the Metro hazardous waste program. Free household hazardous waste collection events are held in communities across the Portland region each year. For a list of upcoming dates and locations near Milwaukie, or more information, visit **www.oregonmetro.gov**. Metro also maintains an online database for other disposal options in the area.

Do you have a septic system? If so, please contact the city's engineering department at 503.786.7600 and ask for information about connecting to the sewer. Old septic systems are the leading cause of high nitrate levels, which leads to viral contamination of the drinking water aquifer.

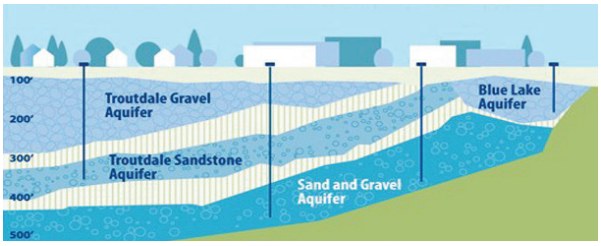
How Milwaukie Keeps Your Water Safe


Johnson Creek

The City of Milwaukie works hard to protect its ground water resources and water distribution system. Milwaukie works closely with the state's Department of Environmental Quality (DEQ) and federal Environmental Protection Agency (EPA). Together, they monitor and cleanup past contaminated sites, and properly evaluate and decontaminate any newly discovered sites. Contaminated sites include former gas stations, dry cleaners, as well as industrial and residential properties with contaminants ranging from naphthalene to heating oil to industrial solvents. DEQ maintains a complete listing of these sites that can be viewed at **www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/ecsi.aspx**.

In addition, the city's stormwater, erosion control and cross-connection programs continuously work together to keep ground water, surface water and drinking water safe.

Where Does Milwaukie's Drinking Water Come From?



Milwaukie water comes by way of the Troutdale Gravel Aquifer located more than 200 feet below ground, not local rivers or streams. This aquifer provides water for communities on both the north and south sides of the Columbia River. The Troutdale Aquifer encompasses about 300 square miles and extends from northern Clark County in Washington to south of Milwaukie, and from east of Troutdale to the Willamette River. The land mass above the aquifer and the Columbia River's prehistoric paleo-channel maintains water levels within the aquifer. In Milwaukie, the groundwater flows primarily from the northeast to southwest.

Milwaukie reaches this water source through seven operating wells that range from 250 to nearly 500 feet deep. The city's wells are located in several locations around town. Emergency water connections with Clackamas River Water District (CRWD) and Portland Water Bureau, as well as a possible future connection with Oak Lodge Water Services, are capable of supplying the water Milwaukie may need in an emergency situation. These interties allow the city's water system to assist other water systems when they need water in times of emergency or high-level maintenance. Milwaukie's water system currently isn't using water from the interties. Typically, when the City of Portland issues a boil water notice, Milwaukie residents do not need to boil water. This is the same for the CRWD area as well. The only time Milwaukie would use City of Portland or CRWD water is during an emergency or extensive project, such as the elevated tank painting work in fall and winter of 2016-17. The project required city staff to drain the elevated tank to sand blast and make repairs before the interior and exterior of the tank was recoated. For more information about Milwaukie's drinking water, visit **www.milwaukieoregon.gov/water.**

The city strongly encourages everyone to sign up for the emergency alert system. To learn more about Clackamas County's emergency public alerts notification system or to sign up to receive alerts, visit **www.clackamas.us/dm/publicalerts**.

By the Numbers: Milwaukie Water Quality Data

The table below shows the results of the city's most recent water quality analyses. Staff examine Milwaukie's water at each of the city's wells and entry points, which are points where treated water enters the drinking water system. The city doesn't test for every contaminant each year. Some pose greater risks than others and, therefore, tested more frequently. Others are less harmful and tested for sporadically. Each regulated contaminant, no matter how small the trace, is listed in this table. The name of each substance, highest level allowed by regulation, ideal goal for public health, amount detected and usual sources for contamination are presented in this data table.

Substance	MCL	MCLG	Results	Violation?	Primary Source	Possible Health Effects
CHEMICALS						
Nitrates	10	0	1.8 **Range** 0.115-4.57	No	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits	Infants younger than 6 months old who drink water in excess of the MCL could become seriously ill and, if untreated, die. Symptoms include shortness of breath and blue baby syndrome.
Barium	2	0	.00495 **Range** 0.0033-0.00495	No	Discharge from drilling waste, discharge from metal refineries, and erosion of natural deposits.	Drinking water containing barium in excess of the MCL can cause an increase in blood pressure, gastrointestinal problems, muscle weakness, and have affects on the nervous and circulatory systems.
Fluoride	4	4	0.17	No	Naturally occuring in ground water	For children, drinking water with fluoride in excess of the MCL can have adverse affects on tooth enamel. For adults, it can increase the likelihood of bone fractures, or lead to bone pain and/or tenderness.
Chlorine	4	4	0.20 **Range** 0.16-0.30	No	Disinfection chemical used to remove bacteria and prevent waterborne illnesses.	Drinking water containing chlorine in excess of the MCL could lead to irritating effects to the eyes and nose, as well as stomach discomfort.
DISINFECTION BYPRODUCTS						
TTHM's (Total Trihalomethanes)	.080	N/A	0.006 **Range** 0-.0136	Yes, monitoring & reporting* **late samples*	Byproduct of the disinfection process when organic matter is present in the raw water	Drinking water containing Trihalomethanes in excess of the MCL over many years may cause problems with the liver, kidneys or central nervous system. It may also increase the risk of getting cancer.
Haloacetic acids HAA5	.060	N/A	0.00034 **Range** 0-.0018	Yes, monitoring & reporting* **late samples*	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
MICROBIAL CONTAMINANTS						
Total Coliform bacteria	Presence of coliform bacteria in 5% of samples	0	1	No	Naturally present in the environment	Coliforms are bacteria naturally present in the environment, and used as an indicator that other potentially harmful bacteria may be present. **Repeat sampling revealed false positive or sampling error.**
Fecal coliform & E. coli	If routine sample and repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	0	0	No	Human & animal fecal waste	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaominated with human or animal waste. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risk for infants, young children and people with severely compromised immune systems. **Repeat sampling revealed false positive or sampling error.**

Substance	Units	Goal	Action Level	90th Percentile	Homes Exceeding Action Level	Violation?	Source of Contaminate
COPPER & LEAD							
Copper	mclg	1.3	1.3	0	0	No	Corrosion of household plumbing
Lead	mclg	.015	.015	0	0	No	Corrosion of household plumbing

UNREGULATED CONTAMINANTS

The Environmental Protection Agency (EPA) uses the UCMR program to collect data for contaminants suspected of being present in drinking water, but do not yet have regulatory standards set by the EPA. The purpose of monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. UCMR4 requires monitoring for 30 chemicals to understand the frequency and level of occurrence of unregulated contaminants in the nation's public water systems. Every five years EPA develops a new list of UCMR contaminants. For a copy of the UCMR4 results, contact Riley Gill at 503.786.7656 or email at gillr@milwaukieoregon.gov.

Substance	Average Level	Health Effects	Primary Sources in Drinking Water
Bromide	35.74 ppb	Large doses may lead to abdominal pain, coma or paralysis	A naturally occuring element, as well as a byproduct of industrial pollution
Haloacetic Acids	0.6 ppb	Carcinogenic and developmental effects possible after long-term exposure	Occurs as disinfection byproducts when clorine is added to clean water
Manganese	2.6 ppb	Chronic exposure can lead to adverse physical and mental effects	One of the must abundant metals in the Earth's crust. Exposure is most likely through food
Total Organic Carbon	1062.5 ppb	Prone to react with disinfectants to produce other undesirable compounds, such as haloacetic acids	Naturally occuring. Infinite sources.

KEY

MCL: maximum contaminant level
MCLG: maximum contaminant level goal
ND: none detected
PPM: parts per million, or milligrams per liter
PPB: parts per billion, or micrograms per liter
PPT: parts per trillion, or nanograms per liter

Maximum Contaminant Level (MCL):
The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG as feasibly possibly using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG):
The level of contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Special Notice for Immuno-Compromised Persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Centers for Disease Control guidelines on the appropriate ways to reduce the risk of infection by microbiological contaminants are available at **www.epa.gov/safewater**.

Is Milwaukie's Water Hard?

Water described as hard is high in dissolved minerals, specifically calcium and magnesium. Hard water is not a health risk, but a often a nuisance because of mineral buildup on fixtures and poor soap and/or detergent performance.

Milwaukie's well water is classified as moderately hard with a hardness factor between 40-120 mg/L as calcium carbonate. Hardness is caused by compounds of calcium and magnesium, and by a variety of other metals.

General guidelines for classification of waters are:

- **Soft** - 0 to 60 mg/L
- **Moderately Hard** - 61 to 120 mg/L
- **Hard** - 121 to 180 mg/L
- **Very Hard** - more than 180 mg/L

Water systems using groundwater as a source are concerned with water hardness. As water moves through soil and rock, it dissolves small amounts of naturally-occurring minerals and carries them into the groundwater supply. Water is a great solvent for calcium and magnesium, so if the minerals are present in the soil around a water-supply well, the hard water may be delivered to homes. Water hardness varies throughout the United States. In areas of the country where the water is relatively hard, industries might have to spend money to soften their water as hard water can damage equipment.

Living with moderately hard water can be easy by remembering to take some simple steps each day. Leaving water on a surface will leave behind tan colored minerals as it evaporates. Always dry the area around your sink and faucet, and be sure to use a good rinse agent in your dishwasher. A rinse agent also elimates the need to use a heated dry cycle. There are also products to use in showers and tubs that help keep hardwater spots from getting out of control. These products are typically sprayed on shower walls and doors to prevent build-up. It's important to flush hot water heaters at least once a year as well to keep calcium levels under control.

To learn more about living with hard water, visit **www.milwaukieoregon.gov/publicworks/hard-water** or visit the U.S. Geological Survey's website at **www.water.usgs.gov/edu/hardness.html**.

Source Water Assessment

In 2004, a drinking water source assessment was conducted by Oregon DEQ and the Oregon Health Authority Drinking Water Program, with assistance from city staff. The report indicates that the water system would be moderately to highly susceptible to a contamination event inside the drinking water protection area. The drinking water protection area is defined in the Source Water Assessment Report based on the distance water moves toward a well over a specified amount of time.

The presence of several high and moderate risk potential contaminant sources within the protection area were confirmed through a potential contaminant source inventory. Under a "worst case" scenario, where it is assumed that nothing is being done to protect groundwater quality at the identified potential contaminant sources, the assessment results indicate that the water system would be highly susceptible to several of the identified potential contaminant sources.

In 2010, the drinking water protection area around Well #4 was reevaluated and the area was expanded slightly to the north and west. Oregon DEQ is currently working to update source assessments and the city will publish any changes to the assessment when it is complete. In addition, the assessment results indicate that Milwaukie's water system is currently considered susceptible to viral contamination. Viral contamination is typically caused by failed septic systems.

In addition, the assessment results indicate that, at this time, the water system is considered susceptible to viral contamination. Viral contamination is typically caused by failed septic systems. A copy of the source assessment can be viewed or obtained for no charge at the Public Works and Community Development Facility, located at 6101 SE Johnson Creek Blvd. It can also be found online at **www.deq.state.or.us/wq/dwp/swrpts.asp**.

Cross-Contamination & Backflow Assemblies

Cross-contamination is the leading cause of waterborne disease. This occurs whenever the water contacts anything that is contaminated or objectionable. Wherever cross-connections can occur is known as a cross-connection. As the water supplier, the city is mandated by State of Oregon drinking water rules (OAR 333-061-0020, 0070 through 0074) to eliminate or control all actual and potential cross-connections.

A cross-connection is any actual or potential connection between drinking water piping and any other substance. Examples of cross-connections include residential irrigation, fire sprinkler systems, commercial beverage dispensers, boilers and garden hose spray attachments. In most cases, a backflow assembly can be installed to prevent a cross-connection. If you would like to know if your home or commercial building is safe from cross-contamination, call the city's water quality specialist at 503.786.7637 for a free safety survey.

If you know of any backflow assemblies on your property, have them tested annually by a certified tester—it's the law. The Oregon Drinking Water Program (DWP) provides a current list of Oregon Health Authority (OHA)-certified Backflow Assembly Testers. Community members can use this list to contact a tester who currently certified, available and appropriate licensed to test assemblies for compensation. Only OHA-certified testers can test assemblies in Oregon.

Certified public Backflow Assembly Testers on this list are also required to obtain licensing through the Construction Contractor's Board (CCB) at **www.ccb.state.or.us/search** or Landscape Contractor's Board (LCB) at **www.oregonlcb.com/contractorsearch.aspx**. DWP does not verify CCB or LCB licensing for individuals on this list of public Testers. Customers should always verify the licensing of any contractor they hire by using the above links or by calling the CCB at 503.378.4621 or the LCB at 503.967.6291.

Reporting Violations

City staff had one violation for late/nonreporting of disinfection byproducts routine in 2019. The violation was for late reporting due to staff turnover and did not have any impact on water quality. Sample collection schedules have been corrected, and sample results revealed no violations of contaminant levels.

Drinking Water Information from the EPA

Drinking water, including bottled water, may be reasonably expected to contain small amounts of some contaminants. However, the presence of contaminants does not necessarily indicate that the water poses a health risk. For more information about contaminants and potential health effects, contact the EPA's Safe Drinking Water Hotline at 1.800.426.4791.

Conservation Tips

Minor water leaks account for more than 1 trillion gallons of water wasted each year in U.S. homes. To save water and money, here are a few tips:

- Check wear on faucet washers and gaskets—if necessary replace worn parts.
- Leaky toilets are most often the result of a worn toilet flapper.
- Replacing the rubber flapper is a quick fix that can save a home with a constantly running toilet up to 200 gallons of water per day.
- Landscape irrigation systems should be checked each spring before use to make sure they were not damaged by frost or freezing.
- If it is necessary to replace plumbing fixtures, look for the WaterSense label. WaterSense labeled toilets, faucets, and showerheads have been independently tested and certified to save water and perform as well as or better than standard models. Visit **www.epa.gov/watersense** for more information about WaterSense labeled products.

Water Sampling Report Available Online

The community can view all of Milwaukie's water sampling results anytime at the State of Oregon Drinking Water Program website. Just visit **www.yourwater.oregon.gov/namelook.php** and enter "Milwaukie." This online tool allows anyone to browse through water sampling results for not only the City of Milwaukie, but any other water system in Oregon. For more information or questions about the reports, contact Mark Odell, water quality coordinator, at 503.786.7622 or odellm@milwaukieoregon.gov.

CITY OF **MILWAUKIE**
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ECRWSS

POSTAL CUSTOMER

Well #2 & Concrete Water Tank at SE 40th & Harvey

MORE INFORMATION

City of Milwaukie

Water Quality Coordinator • Jamie Clark
503.786.7622 or clarkj@milwaukieoregon.gov

Utility Billing
503.786.7525 or utilitybilling@milwaukieoregon.gov

Public Works
503.786.7600 or publicworks@milwaukieoregon.gov

Public Works • 24-Hour Emergency Dispatch
503.786.7500

City Hall
503.786.7555

Johnson Creek Watershed Council
503.652.7477 or www.jcwc.org

North Clackamas Urban Watersheds Council
503.550.9282 or www.ncurbanwatershed.wordpress.com

Regional Water Providers Consortium
503.823.7528 or www.conserveh2o.org

Water Environment Services
503.742.4567 or www.clackamas.us/wes

Oregon Health Authority • Drinking Water Services
503.731.4010 or www.oregon.gov/oha

United States Environmental Protection Agency
1.800.426.4791 or www.epa.gov